Large scale assessment of landscape changes and recovery in forest structure of mangrove wetlands subject to human activities, freshwater diversion, and natural disturbances (severe storms, climate and sea level change) using enhanced Shuttle Radar Topography Mission data. (NRA-03-OES-03)

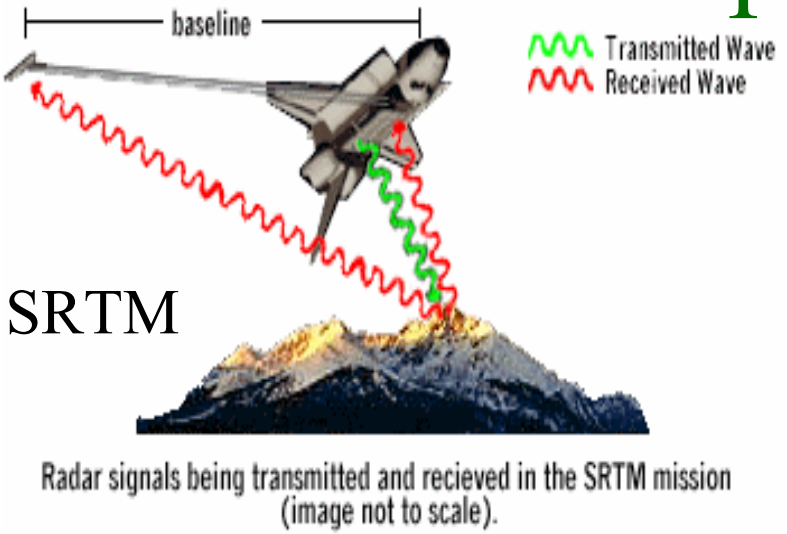
Marc Simard
Jet Propulsion Laboratory, MS 300-319, 4800 Oak Grove dr., Pasadena, CA, 91109
E-mail: marc.simard@jpl.nasa.gov

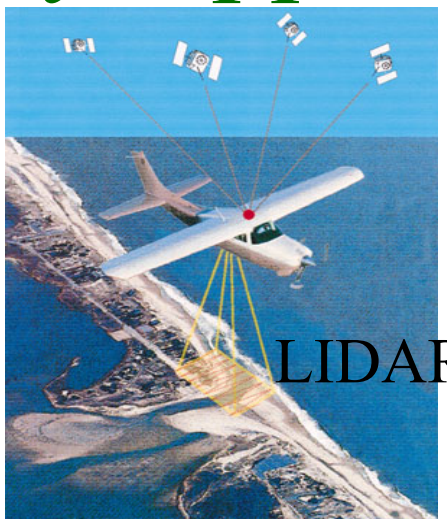
Victor H. Rivera-Monroy and Robert R. Twilley (University of Louisiana at Lafayette),, **Michael Ross and Keqi ZhanG (**Florida International University), **Norman Duke (**The University of Queensland, Australia), **Catherine Ticehurst** (CSIRO Land and Water, Australia), **Ernesto Rodriguez** (JPL)

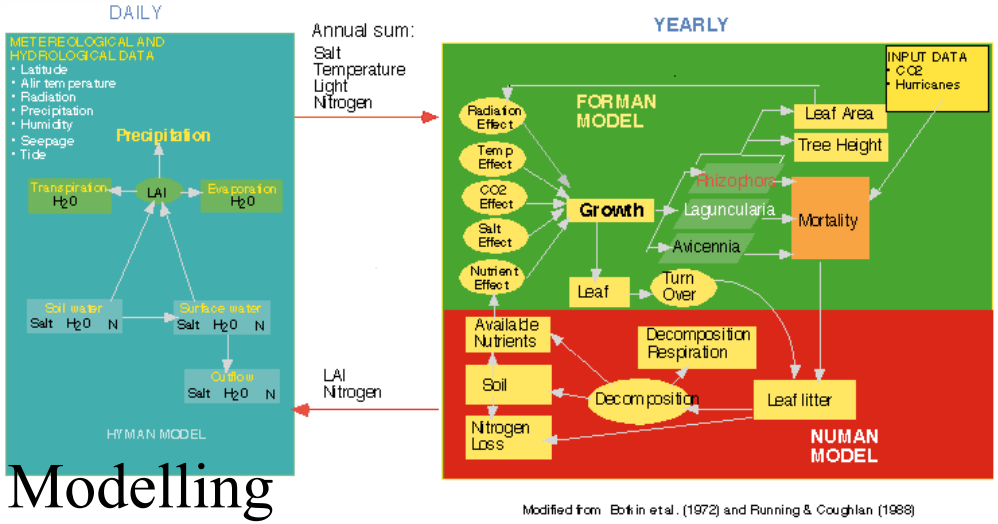
Objectives

- *to generate enhanced SRTM elevation data to estimate vegetation height in wetlands dominated by mangroves with;*
  - *a. concurrent LIDAR mapping;*
  - *b. semi-empirical modeling of radar scattering in mangroves to correct for the height bias;*
  - *c. differential height measurements.*
- *to estimate productivity within the complex mangrove mosaic, in the process improving our understanding of its underlying controls, and extend production models to regional scales.*
- *to develop a landscape-scale understanding of recovery from disturbance, which is of course related to the innate productivity of the site.*

An Interdisciplinary Approach





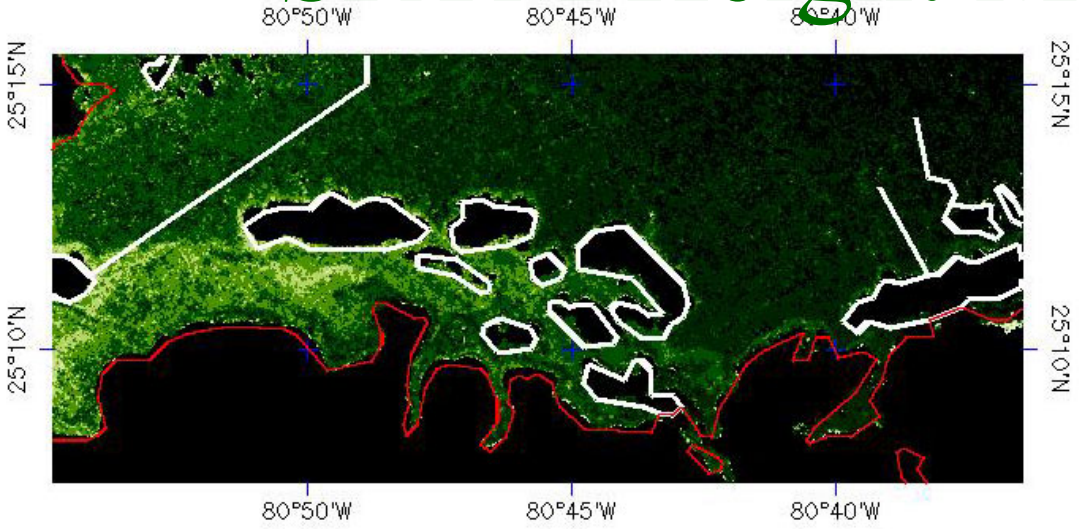


Modelling

Linkages in the HYMAN and FORMAN models proposed in this study.

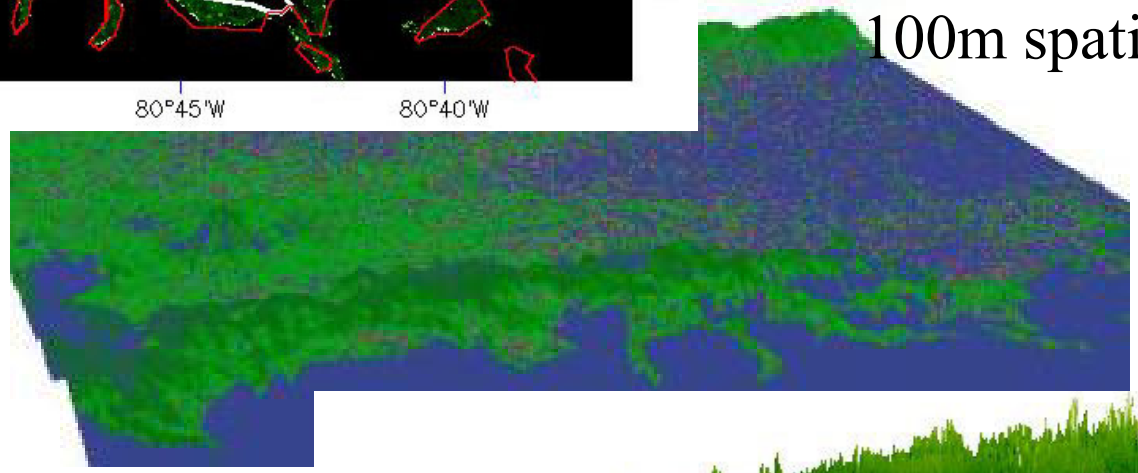
We use interferometric radar data, LIDAR data, field data and ecosystem modeling to estimate ecosystem productivity.

SRTM Height Measurement



Southern coast of Florida

3D representation
100m spatial resolution



3D representation
30m spatial resolution